

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: § Confirmation No. 9035  
Brian Patterson, et al. §  
§  
Serial No.: 10/830,204 § Group Art Unit: 2195  
§  
Filed: April 21, 2004 § Examiner: To, Jennifer N.  
§  
For: TASK MANAGEMENT BASED § Atty. Docket: 200310878-1  
ON SYSTEM UTILIZATION § HPQB:0080

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July 23, 2010 /Nathan E. Stacy/  
Date Nathan E. Stacy, Reg. No. 52,249

**BRIEF IN REPLY TO EXAMINER'S  
ANSWER DATED MAY 27, 2010**

This Reply Brief is being filed in response to the Examiner's Answer dated May 27, 2010. As set forth below, the Appellants respectfully reiterate their request for the Board to review and reverse the Examiner's seven grounds of rejection. In the previous Office Action, the Examiner rejected claims 1-7 under 35 U.S.C. § 112, second paragraph as being indefinite. Further, the Examiner rejected independent claims 1, 8, 16, and 19 (and various dependent claims) under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0091746 by Umberger, et al. (hereinafter "Umberger"). Lastly, the Examiner rejected claims 19-20 under 35 U.S.C. § 101.

With regard to the rejection of claims 1-7 under 35 U.S.C. § 112, second paragraph, the Examiner stated "the phrase 'an interface to a storage system' would be reasonable for one of an ordinary skill in the art to interpret as [a] 'storage controller' because it is well known in the art that the storage controller is an interface between the

storage system and the user.” *See* Examiner’s Answer, pp. 15-16. The Examiner apparently concluded that because of the asserted unresolved question as to whether the recited interface included a controller, claims 1-7 are indefinite. Claim 1 recites “measuring a parameter indicative of workload of an *interface* to a storage system.” (Emphasis added). One of ordinary skill in the art would not view the recited *interface* as a controller, as asserted erroneously by the Examiner. Instead, the skilled artisan would readily know that the any relevant data storage system (including the recited managed storage system) contains a storage array having a set of disk drives and a controller. As for an interface, the claimed system includes a separate interface component (i.e., an I/O device) disposed between the storage system and an external entity or host. *See, e.g.*, Application, p. 1, ll. 9-20; p. 4, ll. 9-17; Figure 4. The Examiner imposed an unreasonably broad interpretation of the recited “interface” by labeling it a storage controller, especially in view of the present specification. Second, even if the recited interface did include a controller, as alleged by the Examiner (which the Appellants do not concede), the claim term “interface” would be broader, not indefinite. The Examiner has equated imposed breadth of the recited term “interface” with indefiniteness. *See In re Miller*, 441 F.2d 689, 169 U.S.P.Q. 597 (C.C.P.A. 1971) (noting that one should not equate breadth of a claim with indefiniteness). Claims 1-7 are not indefinite.

Regarding claim 5, the claim term “the queue” is not indefinite. The Examiner stated the M.P.E.P instructs the Examiner not to import a claim limitation from the specification. *See* Examiner’s Answer, pp. 16-17. Yet, the specification does provide support and clarity. *See Phillips v. AWH Corp.*, 75 U.S.P.Q.2d 1321, 1326 (Fed. Cir. 2005) (instructing that the specification is “the primary basis for construing the claims.”) (citations omitted). The Application makes numerous references to the queue of tasks. *See* Application, p. 4, ll. 16-25; p. 6, ll. 20-28; p. 7, ll. 8-10; p. 8, ll. 4-6, ll. 20-23; p. 9, ll. 20-26. In addition, the plain language of the claims, alone, make clear the term “queue,” especially in the context of managing the storage system of claim 5. The Examiner noted that “the queue” is first mentioned in dependent claim 5 and that “queue” is not recited in claim 1. *See* Examiner’s Answer, pp. 15-16. Nevertheless, the recited “queue” is clear to

the skilled artisan in view of the context and plain language of claim 5, and in view of the specification. A lack of an explicit antecedent basis for terms does not necessarily render a claim indefinite. If the scope of a claim is reasonably ascertainable by those skilled in the art, then the claim is not indefinite. *See Energizer Holdings Inc. v. Int'l Trade Comm'n*, 435 F.3d 1366, 77 U.S.P.Q.2d 1625 (Fed. Cir. 2006). Here, that standard is satisfied. Thus, claim 5 is not indefinite.

In the Examiner's Answer, with regard to the rejection of the independent claims under 35 U.S.C. § 103 based on Umberger, the Examiner made various comments in the Response to Arguments section. *See* Examiner's Answer, pp. 17-20. However, at least two features of the independent claims are not disclosed by Umberger, nor are these two features obvious in view of Umberger. First, the plain language of the independent claims is directed to an interface or input/output (I/O) workload of the storage system. Such plain language is further supported by the specification. *See* Application, p. 1, ll. 9-23; p. 6, ll. 9-20. Conversely, Umberger teaches an optimization of computational processing associated with the storage microprocessor or storage disks, and does not consider interface or I/O availability. *See* Umberger, Abstract (avoiding *processing* bottlenecks); paras. [0005]-[0006] (allocating processing power); [0035] (disclosing that the service components are microprocessors and disk drives); [0065] (evaluating workload relative to available processing power).

Second, independent claims 1, 8, 16, and 20 generally recite assigning a utilization value (i.e., a threshold) to each task at which the task will be authorized to execute, and that this assigned value is indicative of importance or priority of the task. When the interface workload reaches the assigned value of a given task, the task will be allowed to execute. In contrast, Umberger does not disclose or indicate assigning a value to a task in terms of available capacity, much less to establish importance and priority of tasks. While Umberger does consider available processing power, the percentages assigned to the Umberger workloads or tasks are not a priority based on a state of available processing power but are processing *requirements* of executing the given

workload or task. *See e.g.*, Umberger, paras. [0062] and [0065]. In view of the plain language of the claims, and in view of the specification, the recited allowable utilization value for a given task is *not* the amount of utilization *needed* or that would be *used* to execute the task, but is a value to set a priority of the task. It is a state of utilization (i.e., available utilization) of an interface (I/O) of the storage array at which the task will be authorized to execute. *See, e.g.*, Application, p. 3, ll. 6-8 and 15-17; p. 7, l. 29 – p. 8, l. 3. A task may require only a small actual utilization (say, for example, 1% or less of the I/O bandwidth) to be executed, but be assigned an allowable utilization of 90 %, for example, if it is a higher priority task, or assigned an allowable utilization of 10 %, for example, if it is a lower priority task. Moreover, there is no appropriate reason to modify Umberger to read on the claims. Indeed, the Appellants respectfully assert the Examiner employed impermissible hindsight in an effort to render the claims obvious in view of Umberger.

In the Examiner's Answer, with regard to the rejection of claims 19-20 under 35 U.S.C. § 101, the Examiner stated "the controller as recited in claim 19 is not necessarily limited to as the array controllers 300 or 400 which is a physical device, but it can be any controller such as a software controller," and that "[a]ccording to the specification, paragraph [0034] stated that "the computer readable medium" as recited in the claim can be any means that can propagate the program. *See* Examiner's Answer, pp. 13-14 ("The carrier wave signal is direct[ed] to a non-statutory subject matter."). However, one of ordinary skill in the art would not view the recited controller as pure logic traveling in a carrier wave (and without physical manifestation). Indeed, the plain language of claim 19, alone, precludes such an unreasonably broad interpretation. Claim 19 recites that the controller manages task execution in a storage array including measuring input/output (I/O) workload of the storage array. Thus, any reasonable interpretation requires that the recited controller be a physical entity coupled to the physical storage array and be non-transitory. "The inquiry into how a person of ordinary skill in the art understands a claim term provides an objective baseline from which to begin claim interpretation." *See Collegenet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 75 U.S.P.Q.2d 1733, 1738 (Fed. Cir. 2005) (quoting *Phillips*, 75 U.S.P.Q.2d at 1326).

Further, additional support for the reasonable interpretation that the recited controller is a physical device is provided by the context of the present specification. The Examiner stated she cannot import a claim limitation from the specification. However, claims 19-20 should not be construed in a vacuum, but in view of the specification (e.g., physical controllers 300 or 400). Indeed, the specification is “the primary basis for construing the claims.” *See Phillips*, 75 U.S.P.Q.2d at 1326 (citations omitted). The Examiner effectively relied inappropriately on a single paragraph (or sentence) of the specification to awkwardly bring the word “propagate” (and thus carrier wave) into claims 19-20. While the specification includes the generic word “propagate” in a list, the plain language of claim 19-20 and the specification as a whole clearly point to the recited controller as a physical device.

### Conclusion

The Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: July 23, 2010

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